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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,800

08/25/2006

Naoya Amino

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EXAMINER

SCOTT, ANGELA C

ART UNIT

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1709

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/590,800

Applicant(s)

AMINO ET AL.

Examiner

Angela C. Scott

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 08/06 & 01/07.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (US 2003/0139523).

Regarding claim 1, Nakamura et al. teaches a rubber composition (§85) comprising 100 parts by weight of rubber containing 50 to 99 parts by weight (§89) of natural rubber and styrene-butadiene rubber (§88) and 1 to 50 parts by weight of a conjugated diene rubber gel (§89) having a toluene swelling index of 16 to 70 (§85), and 10 to 200 parts by weight (§98) of carbon black (§90).

Regarding claim 2, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains from 80 to 99% by weight of conjugated diene monomer units and 1 to 20% by weight of aromatic vinyl monomer units (§20).

Regarding claims 3 and 20, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains 80 to 99% weight of conjugated diene monomer units, 1 to 20% by weight of aromatic vinyl monomer units, 0 to 19% by weight of other ethylenically unsaturated monomer units, and 0% to 1.5% by weight of crosslinking monomer units (§20) (polyfunctional vinyl monomer units) (§37).

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Claims 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (US 2003/0139523).

Regarding claim 6, Nakamura et al. teaches a rubber composition (§85) comprising 100 parts by weight of rubber containing 50 to 90 parts by weight (§89) of natural rubber and a polybutadiene rubber containing at least 90% by weight of cis 1,4-bond content (§88) and 1 to 50 parts by weight of a conjugated diene rubber gel (§89) having a toluene swelling index of 16 to 70 (§85).

Regarding claim 7, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains from 80 to 99% by weight of conjugated diene monomer units and 1 to 20% by weight of aromatic vinyl monomer units (§20).

Regarding claim 8, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains 80 to 99% weight of conjugated diene monomer units, 1 to 20% by weight of aromatic vinyl monomer units, 0 to 19% by weight of other ethylenically unsaturated monomer units, and 0% to 1.5% by weight of crosslinking monomer units (§20) (polyfunctional vinyl monomer units) (§37).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2003/0139523).

Regarding claim 4, Nakamura et al. teaches the basic claimed composition as set forth above regarding claim 1. Additionally, Nakamura et al. teaches that the rubber composition is suitable for a tire having a high abrasion resistance and a low heat build up (using in a tire as a high hardness reinforcing layer) (¶1).

Nakamura et al. does not teach that this layer is in the sidewall. However, various rubber layers are well known in the tire art as part of the sidewall. At the time of the invention, a person of ordinary skill in the art would have been motivated to use this layer in the sidewall of a tire because it is beneficial in avoiding punctures as well as beneficial as part of run-flat tires.

Regarding claim 5, Nakamura et al. teaches the basic claimed composition as set forth above regarding claim 1. Nakamura et al. does not teach that the high hardness reinforcing layer has a height of 30 to 120 mm. However, it is well known in the art to change result effective

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variables such as height. At the time of the invention, it would have been obvious for a person of ordinary skill in the art to optimize the hardness layer height through routine experimentation, as is commonly practiced in the art, in a tire as taught by Nakamura et al., and would have been motivated to do so in order to promote a desired level of performance when used by a consumer. See MPEP §2144.05.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2003/0139523) in view of Hopkins et al. (US 2003/0220437).

Nakamura et al. teaches a tire (¶1) made from a rubber composition (¶85) comprising 100 parts by weight of rubber containing 50 to 90 parts by weight (¶89) of natural rubber and a polybutadiene rubber containing at least 90% by weight of cis 1,4-bond content (¶88) and 1 to 50 parts by weight of a conjugated diene rubber gel (¶89) having a toluene swelling index of 16 to 70 (¶85).

Nakamura et al. does not teach using the rubber composition as part of a tire tread. However, Hopkins et al. does teach using a rubber composition for a tire tread (¶1). Nakamura et al. and Hopkins et al. are combinable because they are from the same field of endeavor, namely rubber compositions. At the time of the invention, a person of ordinary skill in the art would have found it obvious to make a tire tread, as taught by Hopkins et al., from the rubber composition, as taught by Nakamura et al., and would have been motivated to do so because it is common to use rubber compositions having a high abrasion resistance as tire treads.

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Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2003/0139523) in view of Hopkins et al. (US 2003/0220437) and Chino et al. (US 6,403,720).

Regarding claim 10, Nakamura et al. teaches a rubber composition (§85) comprising 100 parts by weight of rubber containing 50 to 90 parts by weight (§89) of a styrene-butadiene copolymer and another diene rubber such as natural rubber or polybutadiene (§88) and 1 to 50 parts by weight of a conjugated diene rubber gel (§89) having a toluene swelling index of 16 to 70 (§85).

Nakamura et al. does not teach that the aromatic vinyl-conjugated diene copolymer rubber has a glass transition temperature of -40° C to -5° C. However, Hopkins et al. does teach emulsion and solution polymerized styrene-butadiene rubbers having a glass transition temperature above -50° C (§41). At the time of the invention, a person of ordinary skill in the art would have found it obvious to use an emulsion or solution polymerized styrene-butadiene rubber with a glass transition temperature above -50° C, as taught by Hopkins et al., in the rubber composition, as taught by Nakamura et al., and would have been motivated to do so for easier processibility of the rubber.

Nakamura et al. also does not teach that the glass transition temperature of the aromatic vinyl-conjugated diene copolymer rubber and the glass transition temperature of the rubber gel satisfy the following formula:

$$TgA - 10 < TgB < TgA + 10$$

However, Chino et al. does teach a rubber composition with the glass transition temperature of the diene rubber being at least 10° C less than the transition temperature of the rubber gel (Col. 1,

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lines 59-64). Nakamura et al. and Chino et al. are combinable because they are from the same field of endeavor, namely rubber compositions. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a diene with a glass transition temperature being at least 10° C less than the glass transition temperature of the rubber gel, as taught by Chino et al, in the rubber composition, as taught by Nakamura et al., and would have been motivated to do so in order that the individual rubbers will behave similarly and will mix well.

Regarding claim 11, The Office recognizes that all of the claimed effects and physical properties are not positively stated by the reference. However, the reference teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties would implicitly be achieved by combining the disclosed ingredients. If it is applicant's position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the examiner's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects by combining only these ingredients.

Regarding claim 12, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains 80 to 99% weight of conjugated diene monomer units, 1 to 20% by weight of aromatic vinyl monomer units, and 0% to 1.5% by weight of crosslinking monomer units (§20) (polyfunctional vinyl monomer units) (§37).

Regarding claim 13, Nakamura et al. additionally teaches that the rubber composition further contains 10 to 99% weight of silica and 1-90% weight of carbon black (§99) out of 10-

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200 parts by weight of total filler (§98). The carbon black has a nitrogen adsorption specific surface area of 5 m²/g to 200 m²/g (§92).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2003/0139523).

Regarding claim 14, Nakamura et al. teaches a rubber composition (§85) comprising 100 parts by weight of rubber containing 50 to 99 parts by weight (§89) of a styrene-butadiene copolymer rubber (§88) and 1 to 50 parts by weight of a conjugated diene rubber gel (§89) having a toluene swelling index of 16 to 70 (§85), and 10 to 200 parts by weight (§98) of silica (§90).

Nakamura et al. does not teach that the following formulae (2) and (3) are satisfied:

$$F = (R + S) / (R + T + A) \quad (2)$$

$$0.6 < F \leq 0.9 \quad (3)$$

wherein F: flexible segment fraction, R: compounding amount of rubber, S: compounding amount of silica, T: total amount of filler including silica, A: extraction amount of acetone. However, at the time of the invention, a person of ordinary skill in the art would have been motivated to discover the optimum or workable range for these variables through routine experiment.

Regarding claim 15, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains 80 to 99% weight of conjugated diene monomer units, 1 to 20% by weight of aromatic vinyl monomer units, and 0% to 1.5% by weight of crosslinking monomer units (§20) (polyfunctional vinyl monomer units) (§37).

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Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 2003/0139523).

Regarding claim 16, Nakamura et al. teaches a tire made from a rubber composition comprising 50 to 90 parts by weight (§89) of natural rubber and/or a polyisoprene rubber (§88) and 1 to 50 parts by weight of a conjugated diene rubber gel (§89) having a toluene swelling index of 16 to 70 (§85).

Nakamura et al. does not teach that this composition is used as a 1.5mm to 6mm thick undertread (part of the tire). However, Nakamura et al. does teach that this composition can be used as part of a tire, including the undertread. Further, it is well known in the art to change result effective variables such as thickness. At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the thickness range of the undertread through routine experimentation, as is commonly done in the art, in a tire as taught by Nakamura et al., and would have been motivated to do so in order to provide a desired level of performance when used by a consumer.

Regarding claim 17, Nakamura et al. additionally teaches that the conjugated diene rubber gel contains 80 to 99% weight of conjugated diene monomer units, 1 to 20% by weight of aromatic vinyl monomer units, and 0% to 1.5% by weight of crosslinking monomer units (§20) (polyfunctional vinyl monomer units) (§37).

Regarding claim 18, Nakamura et al. additionally teaches that the conjugated diene-based rubber gel is a styrene-butadiene (§27-28) copolymer rubber gel with a styrene content of 5 to 30% by weight (§20).

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Regarding claim 19, The Office recognizes that all of the claimed effects and physical properties are not positively stated by the reference. However, the reference teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties would implicitly be achieved by combining the disclosed ingredients. If it is applicant's position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the examiner's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties and effects by combining only these ingredients.

Correspondence


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela C. Scott whose telephone number is (571) 274-3303. The examiner can normally be reached on Monday through Friday, 7:30am to 5:00pm EST.

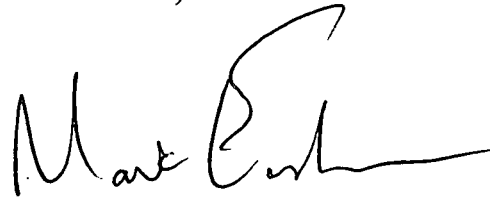
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

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like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ACS 
August 20, 2007



MARK EASHOO, PH.D.
SUPERVISORY PATENT EXAMINER

27/ Aug 07